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Tariff Valuation Bases and Trade Among Developing Countries

Do Developing Countries Discriminate Against Their Own Trade?

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and
Alexander Yeats

Assessing tariffs on a free-on-board (f.o.b.) basis instead of the common cost-insurance-freight (c.i.f.) basis would remove a built-in bias against trade between developing countries. Such a shift would also reduce the general level of tariff protection.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in PRE to assist trade liberalization and reform in developing countries. This study shows that the shift from commonly used cost-insurance-freight (c.i.f.) to free-on-board (f.o.b.) tariff valuation procedures will result in a substantial liberalization of tariffs in developing countries and will also remove an important bias against trade between these nations. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Jean Epps, room S8-037, extension 33710 (27 pages with tables).

In establishing the value of imports for tariff assessment, most countries apply duties either to the cost-insurance-freight (c.i.f.) or the free-on-board (f.o.b.) value of the traded good.

One effect of using the far more common c.i.f. base is to place a disproportionate burden on countries that have higher freight and insurance costs. Distant countries — or countries that have higher shipping costs for other reasons — not only pay higher transport costs but are further penalized by disproportionate tariff costs that worsen their competitive disadvantage.

The f.o.b. valuation procedure does not penalize exporters for their location, but applies a nominal tariff rate directly to the export costs of each country.

Using tariff and transport cost information for six Latin American countries (Argentina, Brazil, Chile, Mexico, Peru, and Uruguay),

Erzan and Yeats examine the influence of the two procedures on the level and incidence of tariff protection.

They conclude that transport and insurance costs generally put developing countries at a disadvantage (compared with developed countries) on interregional trade and that the relatively high Latin American tariffs on c.i.f. prices further worsen their competitive position.

Thus, despite numerous efforts to establish preferential South-South trade, existing tariffs (for items that do not enjoy regional preferences) actually discriminate against it!

To correct the bias against trade between developing countries, Erzan and Yeats recommend adopting the f.o.b. valuation procedure used by Australia, Canada, New Zealand, and the United States. This change would also reduce tariff barriers considerably.

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TARIFF VALUATION BASES AND TRADE AMONG DEVELOPING COUNTRIES

Do Developing Countries Discriminate Against Their Own Trade?

Refik Erzan and Alexander Yeats*

I. Introduction

When establishing the value of imports for tariff assessment, governments have usually chosen one of three alternative procedures for determining the base to which nominal tariffs are applied. The European countries, Japan and almost all developing countries employ a cost-insurance-freight (c.i.f.) valuation base by which tariffs are applied to the selling price in the exporting country, plus all transportation and insurance charges involved in bringing the goods to the port of entry in the importing market. In contrast, the United States, Canada, Australia, New Zealand and several socialist countries of Eastern Europe use a free-on-board (f.o.b.) procedure for establishing the valuation base. Under this system, nominal tariffs are applied to the f.o.b. price of imports exclusive of the costs of transport and insurance to the port of entry in the importing country. With non-zero transport and insurance costs a f.o.b. tariff of (say) ten per cent is always less protectionist than a c.i.f. tariff of the same rate since the latter is applied to a higher valuation base. Third, a few countries have levied national tariffs on the basis of an assigned or "decreed" price of the good. These decreed prices are often based on some notion of a domestic market price rather than the foreign invoice price.

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Several previous studies have examined the possible effects of these alternative valuation procedures within the context of theoretical models of international trade.^{1/} These investigations have noted that a cost insurance-freight valuation base places a disproportionate burden on countries that have relatively higher freight costs. ^{2/} If transport costs are related to distance, nations which are not favorably located in relation to their major export markets pay relatively higher import duties than their competitors. Aside from the influence of distance, developing countries may also bear higher freight costs due to their inability to achieve economies of scale, or their adoption of costly and inefficient policies (such as cargo reservation schemes) affecting shipping. The resulting adverse tariff costs act to further worsen the competitive position of countries that already bear higher freight and insurance costs. In contrast, the free-on-board valuation procedure does not penalize potential exporters for locational and other

^{1/} See, for example, Harry G. Johnson, "A Note on Tariff Valuation Bases, Economic Efficiency, and the Effects of Preferences," Journal of Political Economy, vol. 74 (August 1966), pp. 401-402; P.A. Diamond and F.R. Mitchell, "Customs Valuation and Transport Choice," Journal of International Economics, vol. 1 (February 1971), pp. 119-126; and W.G. Waters, "Transport Costs and the Static Welfare Costs of Tariffs," American Economic Review, vol. 64 (September 1974), pp. 730-733.

^{2/} In a simple theoretical framework that disregards externalities and dynamic gains, it could be argued that tariff assessment based on c.i.f. prices would be optimal in terms of global efficiency. This would follow from the definition of products in a location specific manner. Our analysis is based on the presumption that the dynamic gains and externalities associated with other tariff valuation procedures could be of major importance to developing countries. Our analysis also is influenced by normative considerations such as those involved in developed countries granting trade preferences to developing countries.

transport related disadvantages, but applies a nominal tariff rate directly to the export prices in each individual country.^{3/}

Given the fact that most developed countries' tariffs have been reduced to relatively low levels (i.e., 4 to 6 per cent on average) due to a series of multilateral trade negotiations, while nominal transport costs on OECD intra-trade have also experienced a longer-term decline, issues relating to the choice of a valuation base have been assuming less importance for developed countries. However, in many developing countries high levels of tariff protection (i.e., import duties of 50 to 150 per cent or more on some products), coupled with transportation costs for imports that are often far greater than those of developed countries, creates a situation where the choice of a valuation base can have an important impact on the general level of tariff protection and different effects on exporting countries in various

^{3/} Since the United States collects transport and insurance cost information on all imports Olechowski and Yeats were able to empirically assess the effects of the U.S. switching from its f.o.b. to the European style c.i.f. tariff base. For developing countries in Africa and Asia this change would increase the level of U.S. tariff protection by 22 to 26 per cent while the increase would be in the 10 to 15 per cent for developed countries as a group. Overall, such a shift in the tariff valuation base would offset approximately 60 per cent of the reduction in U.S. tariffs negotiated in the Kennedy Round. However, in a related study Yeats points out that the impact of a c.i.f. valuation base would be much larger in many developing countries where tariffs and transportation costs are far higher than those for the United States. See Andrzej Olechowski and Alexander Yeats, "Hidden Preferences for Developing Countries: A Note on the U.S. Import Valuation Procedure," Quarterly Review of Economics and Business, vol. 19 (Autumn 1979), pp. 89-96; and Alexander Yeats, "Tariff Valuation, Transport Costs and the Establishment of Trade Preferences Among Developing Countries," World Development, vol. 8 (February 1980), pp. 129-136

regions. ^{4/} However, the lack of required information on matched tariff and transport costs for developing countries precluded any systematic empirical analysis of the magnitude and direction of these effects.

To a large degree the data deficiencies have been recently resolved by two independent efforts to compile detailed transport cost information for specific Latin American countries' (i.e., Argentina, Brazil, Chile, Mexico, Peru and Uruguay) imports as well as tariff information for these and other major developing countries. Since our data do not allow us to decompose transport costs into freight and insurance charges, throughout the paper we refer to their sum as transport cost and in some cases just freight charges.^{5/} Using the matched (Latin American) transport and tariff information, we estimate the influence of alternative valuation procedures on

^{4/} A useful empirical survey of tariff protection levels in major developing countries can be found in R. Erzan et. al, "The Profile of Protection in Developing Countries," UNCTAD Review, vol. 1, no. 1, 1989, pp. 29-49. Based on a special United Nations survey taken in the late 1940s Prewo presents statistics on Latin American countries' transport costs on intra-trade transport that indicates total nominal freight costs on some bilateral trade flows often ranged from 50 to over 200 per cent. However, on individual products the ad valorem freight costs were often considerably higher. See Wilfred Prewo, "The Structure of Transport Costs on Latin American Exports," Weltwirtschaftliches Archives, 1978, Band 114, no. 2, p. 324.

^{5/} The Latin American freight and insurance costs for imports were derived from special computer tapes prepared by the ALADI Secretariat which report f.o.b. and c.i.f. values by product and by country. Differences between the f.o.b. and c.i.f. values reflect transport and insurance costs which are compiled directly from import customs vouchers in each of the 6 countries. Aside from the ALADI data, several other countries (Panama, Philippines, United States, Australia, etc.) compile freight cost information for imports directly from customs vouchers and publish this data with national trade statistics. The tariff statistics used in our empirical analysis were drawn from the UNCTAD Data Base on Trade Control Measures which is described in the appendices of Erzan et al, op. cit., and Refik Erzan, "Would South-South Trade Expand from General Trade Liberalization in Developing Countries?" PPR Working Paper No. 319, (Washington: World Bank, 1989).

the overall level and structure of protection in these countries. Our analysis specifically focuses on two important policy issues: how a shift in tariff valuation bases might be used to facilitate (complement) a liberalization in developing countries' trade barriers; and whether the c.i.f. valuation procedure contains a general bias against developing countries' intra-trade. Such would be the case if developing countries generally encountered higher freight costs than do similar items originating in developed countries - due possibly to the North-South structure of liner shipping routes, less efficient port facilities, an inability to implement technological advances in shipping (such as containerization), smaller cargo volumes for products where economies of scale in transport are important, or the adoption of costly policies like cargo reservation. In addition, we also generate and analyze statistics on the importance of transport costs as a barrier to developing country trade both with developed and other developing countries. Finally, we also consider the implications of our findings for landlocked developing countries (many of whom are classified among the least developed countries) that are at a major transport cost disadvantage in international trade.

II. Simulating the Effects of the Valuation Base

The preceding points concerning the effects of alternative tariff valuation procedures can be illustrated through recourse to an algebraic example. In a situation where a free-on-board nominal tariff (t) is applied to imports, the duty paid (d_f) by an exporting country is equal to,

$$(1) \quad d_f = p_b t,$$

where p_b is the f.o.b. price of the good. Under a cost-insurance-freight system, the tariff rate is applied to the f.o.b. price plus all transport and insurance costs incurred in bringing the good to the importing country. If the importer were to shift from a c.i.f. to a f.o.b. valuation base, the percentage point change in import duties could be approximated from,

$$(2) \quad \Delta d/p_b = (p_b t + f p_b - p_b t)/p_b = f t$$

where f represents ad valorem transport and insurance costs. 6/

In addition to this change in the overall level of import duties, there would be varying effects on different exporters. Shifting from an c.i.f. to a f.o.b. valuation base would have a favorable impact on the export performance of high-transport-cost countries, since the decrease in their tariffs would be greater than that for other nations. While these countries competitive position would still be affected by their relatively high transport costs, their problems would not be further exacerbated by the interactive effects of tariffs and freight charges.

6/ The formula used to estimate ad valorem freight costs for exports of product i from country j (f_{ij}) is,

$$(3) \quad f_{ij} = (V_c/V_f - 1) \quad .$$

where V_c represents the c.i.f. and V_f the free-alongside-ship (f.a.s.) value of exports. The reader should note that transport and insurance costs, which represent the difference between V_c and V_f , were collected independently from customs vouchers in the importing country. In some cases transport and insurance costs were not reported on the ALADI tapes and we excluded these shipments from our analysis. This might occur for some contiguous trade which does not incur international freight costs. With the exception of Mexico the excluded items were always less than one per cent of each Latin American countries' total imports.

Consider the case where a manufactured good is exported from a developing to either a developed or developing country. In the normal case where the exporting developing country is a residual supplier in international markets, its f.o.b. export price (p_{bb}) is determined by the domestic import price (P) less transport and insurance charges per unit (R which equals fP_{bb}) and tariffs. With a f.o.b. tariff valuation this indicates,

$$(4) \quad p_{bb} = P - R - p_{bb}t$$

or,

$$(5) \quad p_{bb} = P/(1 + f + t)$$

However, under a c.i.f. valuation system the price (p_{bc}) would be derived from a different equality,

$$(6) \quad p_{bc} = P - R - (p_{bc} + R)t,$$

which indicates,

$$(7) \quad p_{bc} = P/(1 + f + t + ft)$$

The percentage price change in imports accompanying a shift from a c.i.f. to a f.o.b. valuation base could therefore be derived from,

$$(8) \quad (p_{bc} - p_{bb})/p_{bb} = [(1 + f + t)/(1 + f + t + ft)] - 1$$

As a result, equations (2) and (8) respectively can be used to assess the percentage point change in import duties and the price of imports that would

Table 1
1987 Trade Values and Nominal Freight Rates for Selected Countries Exports to Latin America

Exporting Country	Cost-insurance-freight value (\$000) of exports to						Nominal freight rate (\$)					
	Argentina	Brazil	Chile	Mexico	Peru	Uruguay	Argentina	Brazil	Chile	Mexico	Peru	Uruguay
Argentina	--	597,757	144,474	49,237	176,077	146,815	--	6.2	8.4	9.0	15.6	2.2
Australia	44,355	34,729	3,649	23,082	17,857	3,476	20.4	24.5	19.3	9.0	41.7	21.2
Austria	18,945	30,798	20,811	12,962	20,080	7,384	6.5	11.1	7.1	4.6	10.8	9.9
Bahamas	215	1,848	110	3,129	557	53	6.0	24.8	3.4	2.8	1.3	11.0
Bangladesh	2,580	30,045	164	524	38	2,496	6.4	4.2	14.9	6.7	5.2	32.1
Bolivia	13,135	15,847	8,360	932	11,619	67	2.9	5.7	13.3	10.8	28.8	19.8
Brazil	787,561	--	374,517	170,747	187,461	280,514	9.0	--	9.2	7.4	12.3	1.4
Bulgaria	3,656	69	156	3,484	171	--	25.1	6.1	10.6	17.3	24.4	--
Cameroon	119	424	--	5,250	113	39	25.4	7.2	--	3.8	17.9	20.0
Canada	56,708	433,157	54,501	374,602	104,383	15,689	14.7	13.2	11.5	6.1	17.6	15.5
Chile	152,255	375,707	--	6,334	86,445	16,235	6.5	6.8	--	4.0	10.2	16.3
China	11,293	36,395	23,592	47,035	29,123	1,714	17.2	14.2	15.6	6.1	18.5	12.7
Colombia	24,381	12,475	34,415	4,017	98,951	611	11.0	29.9	10.7	7.9	13.5	12.3
Congo	2,257	--	--	1,069	--	41	--	--	--	19.8	--	37.7
Costa Rica	4,334	801	198	1,439	716	27	5.3	4.5	6.2	3.3	3.1	11.1
Cuba	934	3,656	18	1,387	2,470	194	33.6	12.6	7.8	11.6	27.4	9.6
Czechoslovakia	1,544	31,077	2,035	6,687	4,815	2,283	17.1	14.6	13.8	7.5	18.1	18.5
East Germany (Dem. Rep.)	13,501	110,967	4,658	5,739	508	2,435	8.0	15.8	15.5	7.7	10.2	17.1
Ecuador	21,893	8,664	23,888	2,409	17,669	112	25.0	9.2	15.6	2.2	10.4	10.6
European Community (12)	1,775,079	3,560,244	900,783	2,045,155	826,044	238,794	8.1	7.8	9.5	3.9	8.6	9.7
Egypt	53	906	52	22	27	2	30.6	9.7	20.6	25.3	17.8	13.1
El Salvador	97	4	38	621	10	22	5.8	14.9	10.3	4.9	19.5	2.2
Ethiopia	35	--	74	738	2	--	3.8	--	13.9	11.5	17.8	--
Finland	17,932	68,502	23,849	17,965	6,756	2,807	17.7	14.5	7.5	6.8	18.0	12.6
Guyana	538	221	686	1,078	166	--	34.2	32.5	31.4	30.7	31.1	--
Hong Kong	1,625	24,612	--	24,464	6,433	7,624	11.5	11.5	--	6.1	18.5	19.1
Hungary	2,996	21,447	542	3,415	3,171	1,580	10.4	11.4	12.8	9.2	10.9	16.0
India	1,992	5,365	2,076	4,479	1,483	938	19.7	15.2	20.9	8.5	17.2	21.7
Indonesia	36	26,599	2,196	22,437	99	118	34.0	15.6	22.6	8.5	12.3	11.7
Ivory Coast	152	139	17	118	--	--	11.4	17.1	5.2	12.2	--	--
Japan	440,782	948,904	360,322	835,986	231,837	36,131	10.2	10.6	11.1	6.3	11.4	13.6
Mexico	152,930	179,347	44,000	--	37,607	21,035	9.0	11.7	12.2	--	10.1	10.6
Morocco	28	63,132	--	26,883	--	1,275	94.8	23.5	--	27.5	--	9.1
Norway	3,821	74,500	20,947	27,466	2,816	1,389	11.2	6.9	10.4	7.0	13.0	8.6

Table 1 (Continued)
1987 Trade Values and Nominal Freight Rates for Selected Countries Exports to Latin America

Exporting Country	Cost-insurance-freight value (\$000) of exports to						Nominal freight rate (\$)					
	Argentina	Brazil	Chile	Mexico	Peru	Uruguay	Argentina	Brazil	Chile	Mexico	Peru	Uruguay
Pakistan	545	8,620	513	1,284	216	48	15.2	9.3	19.5	11.1	33.7	14.5
Peru	32,467	120,644	27,872	8,182	--	3,905	12.3	6.3	8.9	11.3	--	9.9
Philippines	501	4,158	2,209	1,967	533	254	27.0	20.5	29.3	5.5	67.2	13.9
Poland	3,801	57,554	732	1,741	1,462	1,946	20.7	11.5	25.3	8.4	22.4	20.3
Saudi Arabia	24	67	2,417	--	80	888	31.1	12.7	17.3	--	14.1	29.5
Singapore	46,327	10,239	3,669	9,494	12,045	3,190	15.3	8.3	10.2	6.8	20.4	17.8
South Africa (Rep.)	48,722	71,038	40,400	--	15,786	2,725	12.3	17.3	16.6	--	21.7	17.2
South Korea (Rep. of)	45,402	25,650	81,790	27,814	20,645	5,559	16.4	9.8	13.8	4.1	12.7	17.3
Soviet Union	49,495	52,290	658	110,952	1,901	3,251	16.4	14.1	10.2	13.6	34.1	19.9
Sri Lanka	1,003	383	3,438	8,692	924	508	21.2	20.7	31.8	13.4	19.7	23.4
Sweden	72,977	169,172	50,961	138,509	54,730	9,802	9.9	7.6	7.9	3.2	9.6	5.9
Taiwan, China	20,097	34,216	54,539	--	28,376	9,696	17.7	13.8	12.2	--	15.4	16.6
Turkey	2,669	7,105	2,136	942	4,128	421	18.5	17.7	14.4	14.2	19.0	19.0
United States	871,825	2,966,672	746,104	7,758,729	617,346	88,643	9.7	8.2	9.9	4.6	12.7	12.2
Uruguay	110,901	243,428	7,615	8,920	6,079	--	2.8	1.1	9.5	8.2	10.1	--
Venezuela	12,574	15,209	17,459	3,706	35,206	864	46.5	8.2	20.6	.8	9.1	9.1
Zimbabwe	11	852	1,632	2,025	--	51	31.9	11.3	15.8	30.8	--	19.2

Memo Item

Average Unweighted Nominal Freight Rate	11.6	12.4	11.9	5.9	17.2	12.0
Developed Countries	18.6	13.2	14.5	10.7	18.0	15.1
Developing Countries						
of which:						
Newly Industrialized (NICs) 1/	15.2	10.9	12.1	5.7	16.7	17.7
Developing Africa 2/	31.8	13.2	13.9	18.7	17.8	19.8
Developing America 3/	15.0	11.8	11.2	8.2	14.9	9.7
Other Developing 4/	20.8	14.4	19.9	9.3	22.2	19.5

1/ Hong Kong, Rep. of Korea, Taiwan (China), and Singapore

2/ All above countries in African excluding Republic of South Africa.

3/ Latin America plus Caribbean Developing countries.

4/ All other above developing countries not classified in the NIC, Developing Africa, or Developing America groups.

accompany a shift in the valuation base. 7/

III. Transportation and Insurance Costs for Latin American Imports

Table 1 summarizes the overall importance of transport and insurance charges on imports of the six Latin American countries for which such information are available. The table shows nominal freight rates (derived using equation 3) for 51 selected countries or country groups that exported to Latin America as well as their 1987 c.i.f. value of exports. Although the product composition of the bilateral trade flows may vary, and thus affect the ad valorem freight rates, Table 1 clearly shows the importance of transport cost barriers to trade as well as the potentially important interactive effect of freight costs with c.i.f. tariffs. 8/

More than 100 of the 285 bilateral trade nominal freight rates reported in Table 1 exceed 15 per cent; and there are situations where ad valorem transport charges of 30 per cent or more occur. For example, Cuba

7/ If dp/P is the projected price change derived from equation (7) it is possible to simulate the increase in total imports (TC) from:

$$(9) \quad TC = M \cdot e_d \cdot dP / (P \cdot (1 - e_d/e_s))$$

where M represents the initial value of imports while e_d and e_s are elasticities of supply and demand respectively. For a derivation of equation (9) see Sam Laird and Alexander Yeats, Quantitative Methods for Trade Barrier Analysis, (London: MacMillan Press, 1990).

8/ Average nominal freight rates calculated for total bilateral trade flows will generally understate the actual importance of transport costs due to the "own trade weighting" problem. That is, imports which face very high freight rates will generally enter the calculation of an overall average rate (reported in Table 1) due to the restrictive effects of transport costs on trade. In contrast, low transport cost items enter the calculation with disproportionately high weights. Impressive as some of the nominal freight rates in Table 1 are (for their high levels) subsequent analyses undertaken at more disaggregate levels further stress the importance of Latin American transport costs.

exported approximately \$900,000 in 1986 shipments (largely pulp and waste paper and nonferrous metal ores) to Argentina with an average freight rate of 34 per cent, while Guyana's exports (largely ferrous and nonferrous ores) to five of the six Latin American countries encountered nominal freight costs of more than 30 per cent. On exports of about \$500,000 to Peru the Philippines faced an average nominal freight rate of 67 per cent, while Morocco's shipments to Argentina (largely phosphates and phosphate fertilizers) face ad valorem freight rates of almost 95 per cent. A detailed analysis of these bilateral trade flows with high (over 25 per cent) nominal freight costs-shows they generally consist of foodstuffs, agricultural raw materials, ores and metals.

While the comparisons are affected by differences in product composition, Table 1 indicates that developing countries generally encounter relatively higher freight costs than developed although there are some exceptions for Latin American intra-trade. For example, the average freight rate for Argentina's imports from the developed countries listed in Table 1 is approximately 12 per cent while the corresponding average for developing countries is more than 50 per cent higher. For each of the other five Latin American countries the average freight factor on imports from developed countries is lower than that for developing countries although the margin shrinks to under a percentage point for Peru. On Latin American intra-trade this pattern is reversed (except for Argentina and Mexico) as the average developing country freight factors are below those for developed countries.

Table 2 shows how freight factors for five major product groups: agricultural materials, foods, fuels, manufactures, and ores and metals vary

Table 2
The Variance in Nominal Freight Rates Among Product Groups and Regional Exporters

Importer	Product	Cost-insurance-freight value (\$mill.) of exports from:						Nominal transport costs (\$)					
		Developing	EEC (12)	Developing	Other	USA		Developing	EEC (12)	Developing	Other	USA	
		Africa		America	NICs			Africa		America	NICs		
Argentina	Agricultural materials	1.4	27.5	118.9	26.9	2.1	51.3	20.2	11.4	8.0	17.7	24.6	11.7
	Foods	--	15.3	210.9	2.3	1.0	12.4	--	19.2	7.3	9.7	21.6	19.5
	Fuels	21.6	74.0	386.5	9.0	27.9	66.7	13.3	10.3	2.0	41.9	19.4	18.7
	Manufactures	--	1,709.0	851.8	84.5	13.0	788.8	--	7.9	6.2	15.8	11.4	9.2
	Ores and Metals	1.3	22.9	235.8	0.1	3.9	18.5	26.6	9.7	18.0	32.5	30.8	24.6
Brazil	Agricultural materials	1.6	54.2	70.3	0.9	116.4	91.6	13.7	11.6	4.7	19.7	15.8	9.4
	Foods	0.3	249.8	495.5	0.7	14.0	304.9	20.0	19.0	7.8	93.8	17.5	13.2
	Fuels	465.3	46.9	303.7	--	3,877.9	319.0	10.9	17.5	10.8	--	15.2	11.5
	Manufactures	62.5	3,146.4	706.1	92.3	65.4	2,515.0	21.4	6.7	5.4	11.1	10.4	7.0
	Ores and Metals	15.4	106.3	466.6	0.8	16.1	153.3	17.1	14.6	7.6	5.3	21.4	15.2
Chile	Agricultural materials	0.1	27.4	54.6	0.3	8.4	25.3	11.9	11.1	7.9	21.4	22.7	14.4
	Foods	0.1	27.2	98.1	0.5	4.8	27.7	15.0	13.7	13.9	16.6	27.7	15.5
	Fuels	88.1	9.9	230.9	--	97.0	16.3	6.0	16.1	7.7	18.1	9.2	18.0
	Manufactures	2.2	831.2	551.4	139.0	32.6	660.0	13.7	9.2	9.3	13.0	15.5	9.1
	Ores and Metals	--	14.5	25.4	0.2	1.5	32.9	6.4	14.9	9.8	10.9	25.5	18.7
Mexico	Agricultural materials	4.4	14.8	36.8	2.4	51.8	680.5	11.7	6.8	8.4	15.1	9.3	8.6
	Foods	2.6	120.2	32.6	1.0	12.9	1,081.8	6.3	6.6	9.9	38.9	13.4	8.6
	Fuels	--	4.8	42.7	--	--	467.0	--	7.5	7.1	276.9	--	3.5
	Manufactures	1.8	1,890.0	286.7	59.3	55.0	5,607.5	8.4	3.7	5.1	4.9	5.2	3.2
	Ores and Metals	32.0	18.8	16.7	1.2	1.0	387.0	22.9	8.5	9.3	--	30.5	7.8
Peru	Agricultural materials	--	5.7	41.8	10.6	1.6	22.1	7.0	9.0	11.7	21.5	39.7	13.7
	Foods	5.5	92.1	198.0	0.4	19.7	123.5	9.1	14.4	19.7	27.7	16.7	21.9
	Fuels	--	5.3	66.0	0.1	0.3	47.5	17.2	17.1	8.7	19.2	23.8	16.1
	Manufactures	0.1	716.4	439.1	56.4	12.0	446.2	17.4	7.7	10.1	14.5	19.4	9.9
	Ores and Metals	4.5	11.8	16.1	0.1	0.6	25.3	22.8	16.2	13.4	20.6	64.8	24.0
Uruguay	Agricultural materials	0.9	6.0	35.8	1.2	2.7	5.4	12.8	9.7	4.9	19.5	20.3	15.9
	Foods	0.1	17.3	48.4	0.2	1.7	4.3	17.0	14.7	6.2	14.5	24.1	19.8
	Fuels	52.4	3.2	82.1	--	41.6	1.9	4.8	12.7	3.0	--	9.7	31.3
	Manufactures	1.2	213.1	380.9	24.7	5.4	76.5	8.8	9.2	2.4	17.5	20.7	11.2
	Ores and Metals	4.4	2.2	21.1	--	--	2.3	35.8	18.7	16.7	16.2	--	22.3

for exporters in different regions. ^{9/} Perhaps the major points to emerge from these data concern the magnitude of the freight cost barrier that some developing countries face on inter-regional trade and, second, the size of the differences in nominal freight costs for the different groups of products. For example, ores and metal exports from the "other" developing country group to Peru encounter an average ad valorem freight rate of about 65 per cent (largely due to ore shipments where freight factors average 78 per cent), while food exports from the NICs to Brazil face an average freight factor over 90 per cent. Several different products are responsible for the latter figure with dried and dehydrated vegetables and miscellaneous food preparations having nominal freight and insurance cost of more than 150 per cent. Table 2 also indicates that the importance of transport costs as a barrier to trade varies considerably across product groups with the ad valorem freight rates for manufactures averaging about one-half those for foods or ores and metals.

While the previous results related to shipments of all goods, and were affected by product mix changes, Tables 3 and 4 only compares nominal tariff and transport costs for similar four-digit Customs Council Cooperative Nomenclature (CCCN) goods exported from the EC, United States and four regional developing country groups. That is, the three right most columns of Table 3 compare tariff and freight costs for the same products exported by the

^{9/} In terms of the Standard International Trade Classification (SITC) system manufactures are items in SITC 5 through 8 less 67 and 68; foodstuffs are SITC 0, 1, 4 and 22; ores and metals consist of SITC 27, 28, 67, 68; while agricultural raw materials are composed of SITC 2 less 22, 27 and 28. It should be noted that iron and steel products are normally included in the manufactured products group. We have placed these items in the ores and metals group since they would utilize the same types of carrier as nonferrous metals (SITC 68) which are generally not considered to be manufactures.

Table 3

The Incidence of Tariffs and Transport Costs on Similar Goods Exported by the European Community and Developing Countries to Six Latin American Markets

Product group	Importer	EC compared to NICs 1/			EC Compared to Developing Africa 2/			EC Compared to Developing America 3/			EC Compared to "Other" Developing 4/		
		Nominal Tariff	Nominal Freight Rate EC	Nominal Freight Rate NICs	Nominal Tariff	Nominal Freight Rate EC	Nominal Freight Rate Dev. Africa	Nominal Tariff	Nominal Freight Rate EC	Nominal Freight Rate Dev. America	Nominal Tariff	Nominal Freight Rate EC	Nominal Freight Rate Others
All goods excluding fuels	Argentina	24.1	8.0	32.1	21.9	18.9	24.6	23.4	10.2	7.1	23.3	7.9	26.9
	Brazil	49.6	6.4	34.1	30.1	13.5	12.2	47.6	10.8	7.3	42.0	8.4	23.4
	Chile	19.6	9.7	23.6	19.7	8.1	11.7	19.5	10.7	9.2	19.5	10.0	21.3
	Mexico	20.9	4.8	72.5	19.4	4.8	50.6	19.7	8.5	13.1	21.1	5.2	15.4
	Peru	41.2	9.8	15.0	36.5	11.8	23.0	37.4	14.1	12.9	41.2	10.4	35.8
	Uruguay	28.1	9.4	19.9	22.7	13.4	9.9	25.6	10.9	4.2	28.3	8.4	17.4
Manufactures	Argentina	24.3	7.4	30.9	--	--	--	23.9	9.2	6.2	23.6	7.2	27.1
	Brazil	50.1	6.2	34.7	40.5	12.2	15.6	47.1	7.4	7.0	47.0	6.5	23.5
	Chile	19.6	9.4	22.9	19.7	8.0	11.7	19.5	9.8	8.8	19.5	9.7	21.3
	Mexico	21.8	4.5	42.4	22.2	3.8	38.0	21.9	4.8	10.3	22.6	4.4	12.0
	Peru	41.5	8.9	15.0	39.5	10.2	25.7	40.3	9.8	11.5	41.2	9.9	34.5
	Uruguay	28.6	9.3	19.9	23.9	15.5	10.3	26.0	10.0	3.7	28.4	8.3	17.4
Foodstuffs	Argentina	18.3	14.6	14.1	--	--	--	21.6	26.8	8.9	19.6	10.1	24.6
	Brazil	54.3	17.7	27.8	25.0	47.2	5.6	38.6	23.8	6.9	34.2	42.5	25.0
	Chile	20.0	16.1	36.4	20.0	10.4	9.3	20.0	12.6	19.9	20.0	19.4	19.9
	Mexico	7.5	8.8	590.8	5.5	9.9	165.1	11.5	9.3	41.5	7.0	12.1	16.3
	Peru	44.8	27.4	20.7	26.3	9.6	9.2	27.0	20.6	20.4	49.9	74.5	22.7
	Uruguay	27.4	17.3	19.1	35.6	14.4	17.0	26.2	28.4	7.7	23.6	17.5	14.5
Agricultural Materials	Argentina	12.8	17.5	21.0	14.4	18.2	20.7	20.0	19.4	9.4	14.2	15.3	18.8
	Brazil	29.7	4.6	18.6	29.7	4.6	14.4	27.6	19.6	6.2	30.1	4.6	17.0
	Chile	20.0	11.5	36.2	20.0	10.7	13.6	20.0	11.3	14.6	20.0	11.0	18.1
	Mexico	13.6	10.3	15.6	3.6	8.8	19.2	5.1	25.7	19.4	5.4	11.5	120.5
	Peru	32.3	18.5	14.6	26.1	7.0	12.0	21.1	87.0	11.6	27.9	31.0	25.4
	Uruguay	11.3	8.5	10.0	10.0	3.2	3.2	12.9	5.6	9.0	19.1	17.1	5.8
Ores and Metals	Argentina	24.5	17.4	72.0	24.7	18.2	26.9	18.4	12.3	18.1	24.9	16.5	29.3
	Brazil	35.0	7.5	6.3	8.3	5.6	8.8	9.0	23.2	10.3	4.4	16.7	24.8
	Chile	20.0	13.1	24.9	20.0	10.7	5.0	20.0	27.9	11.5	20.0	17.9	26.7
	Mexico	--	--	--	6.0	11.0	19.3	10.1	65.6	18.7	5.7	17.1	17.3
	Peru	15.3	52.5	8.8	18.3	38.3	19.0	23.3	34.4	17.4	20.0	12.9	69.2
	Uruguay	33.0	8.7	30.4	10.0	34.5	19.2	20.3	14.3	17.4	--	--	--

1/ NICs consist of Hong Kong, Singapore, Taiwan (China) and Republic of Korea.

2/ Consists of all African countries (North Africa plus Sub-Saharan Africa) except the Republic of South Africa.

3/ Consists of all Latin America and Caribbean developing countries.

4/ Consists of all other developing countries except those classified in the NIC, Developing Africa or Developing America group.

Table 4
The Incidence of Tariffs and Transport Costs on Similar Goods Exported by the United States and Developing Countries to Six Latin American Markets

Product group	Importer	USA Compared to NICs 1/			USA Compared to Developing Africa 2/			USA Compared to Developing America 3/			USA Compared to "Other" Developing 4/		
		Nominal	Nominal Freight Rate		Nominal	Nominal Freight Rate		Nominal	Nominal Freight Rate		Nominal	Nominal Freight Rate	
		Tariff	USA	NICs	Tariff	USA	Dev. Africa	Tariff	USA	Dev. America	Tariff	USA	Others
All Goods Excluding Fuels	Argentina	24.1	9.7	32.1	21.8	24.7	22.7	23.2	11.7	7.1	23.3	9.2	26.9
	Brazil	49.7	7.3	34.3	29.3	10.8	12.3	41.9	10.2	7.2	42.1	7.3	23.4
	Chile	19.6	11.9	23.6	19.7	8.7	18.3	19.6	12.5	9.2	19.5	10.0	21.5
	Mexico	20.8	3.2	74.2	17.5	3.7	45.3	19.0	4.7	13.0	21.0	3.6	22.0
	Peru	40.8	10.5	16.2	37.9	11.5	24.8	36.5	13.1	13.3	40.6	10.2	35.2
	Uruguay	27.9	12.0	19.9	25.4	12.3	9.8	25.7	7.6	4.1	28.3	11.9	17.4
Manufactures	Argentina	24.3	9.0	30.9	--	--	--	23.6	10.6	6.2	23.6	8.0	27.1
	Brazil	50.1	7.1	34.7	38.5	12.9	15.3	46.7	8.2	7.1	47.0	6.3	23.5
	Chile	19.6	9.8	22.8	19.7	8.5	11.7	19.5	10.3	8.8	19.5	9.6	21.3
	Mexico	21.8	2.6	42.4	22.3	1.8	38.0	21.9	3.0	10.4	22.7	2.9	12.0
	Peru	41.5	10.1	14.9	39.5	10.1	25.7	40.3	11.0	11.5	41.2	9.7	34.5
	Uruguay	28.1	11.9	19.8	25.8	12.3	10.2	26.1	15.3	3.6	28.6	11.8	17.5
Foodstuffs	Argentina	18.4	11.3	14.1	--	--	--	21.0	35.4	9.0	19.6	15.0	24.5
	Brazil	89.0	19.6	55.6	25.0	7.3	5.6	34.8	25.4	8.1	35.2	12.2	25.5
	Chile	20.0	74.0	36.2	20.0	12.1	15.6	20.0	50.9	14.0	20.0	16.8	22.3
	Mexico	8.6	11.6	525.0	4.8	10.1	79.3	8.5	9.1	28.7	8.1	11.2	125.8
	Peru	33.2	17.3	50.3	44.0	26.4	17.3	22.3	21.1	22.0	35.5	19.5	43.5
	Uruguay	29.2	19.2	18.7	--	--	--	23.8	18.2	7.0	25.5	12.7	14.6
Agricultural Materials	Argentina	12.8	12.4	21.1	13.2	16.1	10.1	22.0	12.9	8.5	14.2	13.1	18.7
	Brazil	29.7	11.4	18.6	30.2	11.4	14.5	32.5	13.3	5.5	33.4	10.9	19.5
	Chile	20.0	13.8	36.2	20.0	12.9	141.9	20.0	12.8	12.3	20.0	12.0	27.1
	Mexico	13.6	4.0	15.6	5.8	2.4	13.1	5.5	8.0	18.0	5.4	3.0	120.5
	Peru	29.4	11.4	14.7	26.1	12.3	7.0	20.9	14.8	11.3	27.8	14.7	25.4
	Uruguay	13.1	12.6	19.0	24.9	12.4	9.3	22.3	16.5	5.2	13.1	12.6	15.7
Ores and Metals	Argentina	24.5	26.1	72.0	24.7	27.6	26.9	18.2	17.1	18.2	24.9	26.9	29.3
	Brazil	35.0	13.1	6.3	8.2	6.7	6.4	7.7	8.8	8.1	4.4	12.0	24.8
	Chile	20.0	11.1	23.6	20.0	9.1	5.0	20.0	18.0	11.5	20.0	19.6	26.7
	Mexico	--	--	--	6.3	9.0	19.8	10.2	8.6	18.3	5.7	14.6	17.3
	Peru	15.3	24.4	8.8	18.3	30.3	19.0	23.3	26.0	17.6	20.0	17.9	69.2
	Uruguay	33.0	12.0	30.4	--	--	--	21.6	132.2	20.1	--	--	--

1/ Consists of Hong Kong, Singapore, Taiwan (China) and Republic of Korea.

2/ Consists of all African countries (North Africa plus Sub-Saharan Africa) except the Republic of South Africa.

3/ Consists of all Latin America and Caribbean countries.

4/ Consists of all other developing countries except those classified in the NIC, Developing African or Developing America group.

European Community and the group of "other" developing countries. ^{10/} Other columns compare tariffs and freight costs for similar goods from the EC and developing America, EC and developing Africa, and the EC and the NICs. For the EC and each developing country group the tariff and freight cost statistics were averaged for five major product groups -- all goods excluding fuels, manufactures, foodstuffs, agricultural raw materials and ores and metals -- using a constant set of weights based on each of the six Latin American countries' total imports. Table 4 presents similar information for common products exported by the United States and each of the four developing country groups.

Both Tables 3 and 4 show that developing countries are normally at a transport cost disadvantage vis-a-vis similar exports from the EC and United States, and in many instances their adverse transport differential exceeds 20 percentage points. For example, all goods (excluding fuels) exported from the EC to Argentina have ad valorem transport costs of 8 per cent while similar items exported by the NICs have nominal freight costs that are four times higher. For all six Latin American import markets nominal freight rates for all goods (less fuels) exported by the NICs and "other" developing country group always exceed the freight rates for the EC, while the same pattern of adverse freight factors holds for Africa (except for shipments to Brazil and Uruguay).

^{10/} The tariffs are for 1985/86 and, in some cases, may have changed since that period. The tariff averages have been derived by weighting the most-favored-nation rates for individual products by total imports of each country from all sources. The tariff statistics exclude various para-tariff charges which, on the average, add another 10 percentage points to MFN tariffs.

These comparisons show the problem developing countries face with c.i.f. tariffs that incorporate unfavorable freight cost differentials into the product valuation base. For example, equation (2) indicates that Argentina's 24 per cent average c.i.f. tariff on all goods results in the duty collected on NIC exports being approximately four times that for the same goods exported from the European Community. Similarly, equation (8) shows that c.i.f. tariff causes landed prices of NIC exports to increase by about four times the EC average. These adverse discriminatory tariffs have the opposite effects of preferential tariffs and likely cause potential developing country intra-trade to be diverted to low transport cost developed countries.

Table 4 shows that the major finding for the EC, that on their intra-trade developing countries typically encounter adverse ad valorem freight costs, also holds when comparisons are made with the United States. For shipments of similar goods to the six Latin American markets the NICs nominal freight costs are more than three times higher (9 versus 33 per cent) while a spread of over 70 points occurs on similar products shipped by the US and NICs to Mexico. Freight rates for the group of "other" developing countries always exceed (and average more than twice as high) those of the United States, although the table shows a favorable freight rate differential occurs in several cases for Latin American intra-trade.

As noted, a cost-insurance-freight tariff valuation system will worsen the competitive position of a country which encounters unfavorable freight costs due to the interactive effects of tariffs and transport charges, while a free-on-board valuation has a neutral effect. Since the previous analysis demonstrated that developing countries were generally at a major transport cost disadvantage on inter-regional trade, and also faced some disadvantages on intra-regional exchange, a key question is how great a bias

(over and above the effects of transport costs) is associated with the Latin American countries' existing tariff valuation practices. For information on this point equation (2) was used to calculate the percentage point change in import duties that would be collected under a f.o.b. as opposed to c.i.f. tariff. This information was then expressed as a average percentage change in f.o.b. versus c.i.f. tariffs on the EC, United States and each developing country group. Table 5 shows the results when these computations were made for similar shipments from the EC and each of the four developing country groups while Table 6 presents findings for the United States. To assist in interpreting this information, both tables also show the actual (unweighted) average value of tariffs in each of the six Latin American countries.

The message that clearly emerges from Tables 5 and 6 is that the existing c.i.f. tariff valuation practices contain a major bias against most South-South trade, and that this bias is particularly severe on some inter-regional trade. For example, Table 5 shows the average duty collected on NIC exports to the Latin American countries is 29 per cent higher under existing c.i.f. tariffs than would be the case with a f.o.b. valuation base, while the corresponding increase for similar goods exported from the United States is less than one-fifth this amount. About the same results occur for comparisons involving the EC. The magnitude of the bias against the "other" developing country groups is slightly lower than that for the NICs, but the the increase in duties collected on their goods is still about three times that for the U.S. or EC. Tables 5 and 6 indicate that, for the six Latin American countries combined, the c.i.f. tariffs also incorporate a significant bias against developing Africa. On South American intra-trade the results are

Table 5

Estimated Change in Import Duties Collected on Similar Goods Shipped from the U.S. and Developing Countries with a Shift from
Cost-Insurance-Freight (c.i.f.) to Free-On-Board (f.o.b.) Tariffs

Importer	Tariffs on Similar Exports from U.S. and Developing Group				Percentage change in import duties on similar goods from the U.S. and regional developing groups							
	NICs	Africa	America	Others	U.S. and NICs		U.S. and Dev. Africa		U.S. and Dev. America		U.S. and Other Developing	
					U.S.	NICs	U.S.	Africa	U.S.	America	U.S.	Others
Latin American Average	30.5	25.3	27.7	29.1	-5.9	-29.2	-7.1	-20.6	-7.6	-9.0	-6.9	-27.8
Argentina	24.1	21.8	23.2	23.3	-9.5	-32.0	-24.3	-22.5	-11.6	-6.9	-9.0	-27.0
Brazil	49.7	29.3	41.9	42.1	-7.2	-34.2	-10.9	-12.3	-10.2	-7.2	-7.4	-23.5
Chile	19.6	19.7	19.6	19.5	-11.7	-23.5	-8.6	-18.2	-12.8	-9.2	-10.3	-21.5
Mexico	20.8	17.5	19.0	21.0	-3.4	-74.0	-3.4	-45.1	-4.7	-13.1	-3.8	-21.9
Peru	40.8	37.9	36.5	40.6	-10.5	-16.2	-11.6	-24.5	-13.2	-13.4	-10.1	-35.2
Uruguay	27.9	25.4	25.7	28.3	-11.8	-19.7	-12.2	-9.8	-17.5	-4.2	-12.0	-17.3

Note: See the notes to Table 3 for information on the developing countries classified in each regional group.

Table 6

Estimated Change in Import Duties Collected on Similar Goods Shipped from the EC and Developing Countries with a Shift from
Cost-Insurance-Freight (c.i.f.) to Free-On-Board (f.o.b.) Tariffs

Importer	Tariffs on Similar Exports from U.S. and Developing Group				Percentage change in import duties on similar goods from the U.S. and regional developing groups							
	NICs	Africa	America	Others	E.C. and NICs		E.C. and Dev. Africa		E.C. and Dev. America		E.C. and Other Developing	
					E.C.	NICs	E.C.	Africa	E.C.	America	E.C.	Others
Latin American Average	30.6	25.1	28.0	29.2	-7.0	-32.4	-11.8	-23.8	-10.5	-8.4	-7.9	-24.4
Argentina	24.1	21.9	23.4	23.3	-7.9	-32.0	-18.7	-24.7	-10.3	-7.3	-7.7	-27.0
Brazil	49.6	30.1	42.6	42.0	-6.4	-34.1	-13.6	-12.3	-10.8	-7.3	-8.3	-23.3
Chile	19.6	19.7	19.5	19.5	-9.7	-23.5	-8.1	-11.7	-10.8	-9.2	-10.3	-21.5
Mexico	20.9	19.4	19.7	21.1	-4.8	-72.2	-4.6	-50.5	-8.6	-13.2	-5.2	-6.6
Peru	41.2	36.5	37.4	41.2	-9.7	-15.0	-11.9	-23.0	-14.2	-12.8	-10.4	-35.7
Uruguay	21.8	22.7	25.6	28.3	-9.2	-19.9	-13.2	-9.7	-10.9	-4.3	-8.5	-17.3

Note: See the notes to table 3 for information on the developing countries classified in each regional group.

mixed. When the United States is used as the comparator Table 5 shows c.i.f. tariffs (slightly) discriminate against other Latin American countries. However, the direction of bias is reversed when comparisons are made with the EC. 11/

IV. The Policy Perspectives

Numerous policy initiatives have in the past attempted to create preferences for developing countries' intra-trade. These initiatives have often been of a regional character, as in the case where members of the Central American Common Market (CACM), the Caribbean Community (CARICOM), the Latin American Free Trade Association (LAFTA), or Association of South-East Asian Nations (ASEAN) exchanged tariff preferences, while several attempts were made to generate preferences for inter-regional developing country preferences. 12/ Examples of the latter include the Tripartite Agreement between India, Yugoslavia and Egypt, or the GATT Protocol for Trade Relations

11/ Another way to assess the discriminatory effects of the Latin American tariffs is to compute the change in developed and developing country exports that would occur if c.i.f. duties were converted to a f.o.b. valuation base. We simulated the effects of this tariff conversion by first using equation (8) to estimate the resulting change in the landed prices of developed and developing country products and then using these price change projections in equation (9) to estimate trade creation. These results indicate that developing country exports to Latin America would increase by about 12 per cent while the developed country trade expansion would be less than half this amount. The results probably under-state the expansion of developing country intra-trade (and overstate the increase in developed country exports) since they do not account for the diversion of trade from developed to developing country exporters. Our simulations of trade creation are based on Latin American import demand elasticities published in Moshin Khan, "Import and Export Demand in Developing Countries," IMF Staff Papers, vol. XXII, (November 1974), pp. 678-93.

12/ With the 1980 Montevideo Treaty LAFTA was transformed into the Latin American Integration Association (LAIR).

Among Developing Countries under which some larger developing countries exchanged regional and inter-regional preferences. More recently, efforts have been made to negotiate a Global System of Trade Preferences (GSTP) under which preferences would be exchanged among a far larger number of developing countries. It is generally held that most of these arrangements have achieved very limited success (or have been outright failures). Regardless of the outcome, however, they have shown how very difficult the negotiating process is, especially when large numbers of countries are involved. ^{13/}

In spite of the difficulties, the interest in generating preferences prevails. Contrary to this interest, this study employs Latin American data and demonstrates that the commonly used cost-insurance-freight tariffs of most developing countries actually discriminate against developing countries' intra-trade and the degree (magnitude) of discrimination is particularly important for inter-regional trade. This is due to the fact that c.i.f. tariffs incorporate the adverse freight differential developing countries generally face and therefore magnify the detrimental effects of the higher transport costs. Our analysis demonstrated that shifting to free-on-board tariffs, similar to those employed by the United States, Canada, Australia or New Zealand, would remove this discriminatory interactive effect of tariff and freight costs and let the competitive position of different countries be influenced only by their relative freight costs (which often are a major trade barrier already). This simple shift alone appears to have the potential to

^{13/} For an assessment of problems encountered in regional integration efforts see C. Vaitos, "Crisis in Regional Economic Cooperation (Integration) Among Developing Countries: A Survey," World Development, vol. 6 (1978), pp. 719-769. The difficulties in negotiating these arrangements are examined in P. Wonnacott and M. Lutz, Is There a Case for Free Trade Areas? in J.J. Schott (ed.), Free Trade Areas and U.S. Trade Policy, (Washington: Institute for International Economics).

contribute more to South-South trade expansion than most previous and present preference schemes. A second related point is that policy studies have focused on the need for reducing the high levels of protection in many developing countries in order to achieve benefits associated with "outward oriented" trade and development strategies. ^{14/} Since a given (say 20 per cent) - f.o.b. tariff is always less protective than a similar c.i.f. duty, a shift in the tariff valuation base could also be an important part of a general strategy for lowering trade barriers.

While it was not the focus of this analysis, the findings appear to have important implications for the "least developed" of the developing countries -- many of which are land locked. ^{15/} Studies have demonstrated that these countries are often forced to pay major freight costs for the transit of goods through their neighbors, so the adverse effects of c.i.f. tariffs would be especially hard on these nations. In this respect, the valuation base problem becomes more than a South-South issue since Japanese and European tariffs (which are particularly high on foods, textiles, clothing and some other labor intensive products) are levied on a cost insurance freight basis.

^{14/} For a discussion of the need for, and potential benefits associated with a liberalization of trade barriers in developing countries see World Bank, Strengthening Trade Policy Reform, (Washington: Country Economic's Department of the World Bank, October (1989)). A general discussion of the potential benefits of outward oriented development strategies can be found in Alexander Yeats, Trade Barriers Facing Developing Countries, (London: Macmillan Press, 1979).

^{15/} The least developed group is a special United Nation's category consisting of some 42 countries over 60 per cent of which are in Africa. For a list see UNCTAD, Handbook of International Trade and Development Statistics, (New York: United Nations, 1989), pp. v and vi. Some studies show that products exported by land-locked countries may face ad valorem transport costs of 25 to 50 per cent just in transit through their neighbors to the port of exportation. The findings of this study also have implications for cost-benefit studies of transport projects in these, and other, developing countries. As long as tariffs are applied to c.i.f. values, lower transport costs will also lower the level of tariff barriers in export markets.

Appendix

A Diagramatic Analysis of the Interaction Between
Freight Costs and Cost-Insurance-Freight
Import Duties

Figure 1 illustrates the interaction between freight rate differentials facing different exporters and c.i.f. tariffs. The horizontal axis measures various possible freight rate differentials facing developing countries on intra-trade, while the vertical axis shows associated tariff differentials. As such, observations in the upper right-hand quadrant match adverse developing country freight margins with adverse tariff differentials. The lines in the figures, such as t_{20} , trace out the relation between tariff and freight rate differentials at various tariff levels. ^{1/} For example, a freight rate differential of 18 per cent (OA) in connection with a 60 per cent tariff rate would produce an adverse tariff margin of over 10 percentage points (OE). At a lower tariff of 40 per cent (represented by the line t_{40}) the tariff differential shrinks to OD (which is 7.2 per cent). Figure 1 also shows that the c.i.f. system may produce a tariff differential in favor of developing countries. These situations are depicted in the lower left quadrant of the figure. While the empirical evidence developed in this study suggests this is an exception (particularly on inter-regional trade), some countries, such as neighbors, may have lower transport costs than those involved in trade with developed nations.

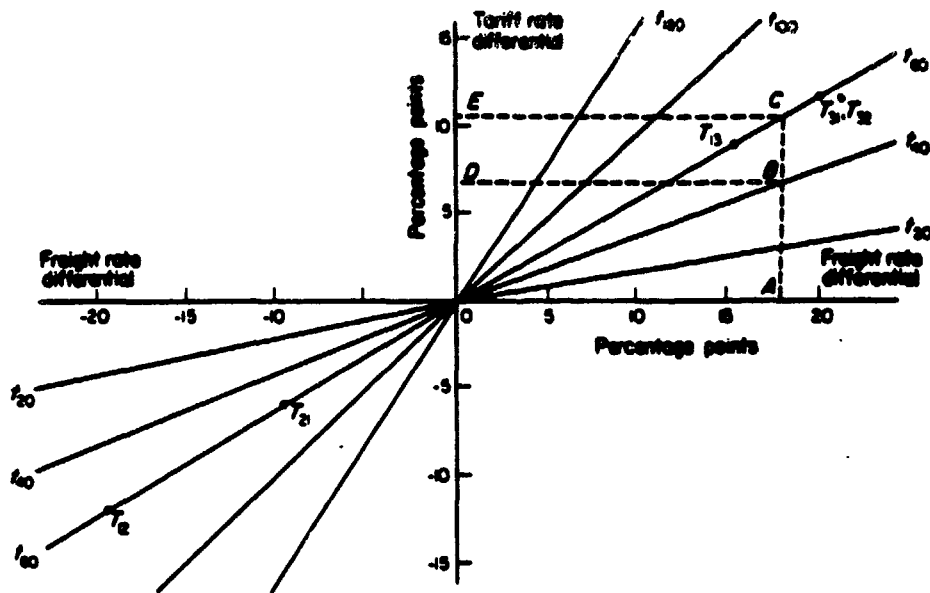
^{1/} The tariff differential (T_{ik}) for developing country i over developed country d in the K th market can be derived from:

$$T_{ik} = t (f_{ik} - f_{dk})$$

where t is the tariff rate applied by developing country k , f_{ik} is the ad valorem freight rate for shipments from i to k , while f_{dk} is the ad valorem freight rate for exports from the developed country.

Figure 1

Diagrammatic analysis of the relation between freight and tariff differentials under a c.i.f. valuation base



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